

Earth-Friendly Gardening & Landscaping

The GreenMan



Greening and cleaning your indoor air

The overall quality of indoor air in our homes and offices has been declining steadily during the past three decades. Concerns regarding energy conservation during the 1970s led to superior insulation materials, tight-fitting windows and doors, and other construction features which have effectively bottled up our living and work spaces. Unfortunately, while keeping out cold drafts, those design elements have also sealed in a host of potentially harmful air pollutants, leading to "sick building syndrome" and other health issues.

Some of the offending pollutants include biological contaminants, such as black mold, and gases like carbon monoxide and radon. However, "off-gassing" is another modern phenomenon which is contributing significantly to indoor air pollution. Off-gassing is the release of various organic compounds by some particularly common sources all around us, ranging from furniture and floor coverings to paper products, printed materials, paint, and simple plastic grocery bags.

The off-gassed chemicals are basically used as adhesives and binding agents, solvents, coatings, fire-retardants, insulators, and so forth.

Among the most common is formaldehyde, which is found everywhere from particle board and pressed wood products, to carpet backing and floor tiles, paper towels, and even permanent-press clothing. There is also benzene, which is found in paints, dyes, inks, and plastic, and trichloroethylene, also used in paints, lacquers, and adhesives. There are scores more, but the obvious fact is that we live in a largely synthetic, manufactured world, and now those synthetics are starting to affect us adversely.

As a delicious touch of irony, the solution to our synthetic problems

might actually be all-too-natural. Specifically, the answer might be as simple and elegant as the common indoor plant. After all, we have turned to indoor plants to bring a splash of color and vitality to sterile office environments, and to brighten windows and corners in our homes. Like the fern-filled parlors of our Victorian ancestors, perhaps we, too, still feel a certain kinship with nature which prompts us to bring a little bit of the outdoors inside.

Regardless of our motivation for having indoor plants, that humble pothos on a window sill or corn plant stretching up to the ceiling



of our office is working overtime to absorb and otherwise neutralize many of the harmful chemical compounds being off-gassed at our expense.

The majority of the research examining plants as natural air cleaners comes from Dr. Bill Wolverton and fellow scientists at NASA's Stennis Space Center in the early 1990s. NASA has been concerned about the long-term environmental health consequences of off-gassing from the hundreds of chemical compounds found on shuttles and space stations. A two-year study was conducted which involved plexiglass chambers containing a variety of plants into which different pollutants were introduced and measured.

Amazingly, plants like aloe, philodendron, snake plant (*Sanseveria*), and golden pothos removed up to 90 percent of the formaldehyde injected into the chamber. *Dracaena*, peace lily (*Spathiphyllum*), English ivy, and Gerbera daisy helped remove up to 80 percent of the benzene in their closed system. And many of these same plants also reduced TCE levels by nearly 50 percent. In fact, numerous plants were effective at removing a broad range of the most dangerous compounds and other pollutants, including carbon monoxide.

Moreover, while the many thousands of stomata or "pores" on each plant leaf handled much of the filtration process, further

research revealed that even roots and bacteria in the plant's soil helped absorb some of the toxic substances. It is also believed that over time, plants and soil microorganisms may in fact adapt themselves to absorb even more and different contaminants, turning to them as a source of nutrient, much like nitrogen and carbon dioxide.

Those of us still trapped on Earth can easily take advantage of these exciting findings by simply adding one medium-sized indoor plant per 100 square feet, especially using the plants listed below. According to NASA researchers, just 15 plants can help clean the air of the average 1,800 square foot home.

In reality, of course, adding a few potted palms to your home or office will never provide completely healthy indoor air. Greener, cleaner air requires that consumers and building managers select more natural products for their home and office, whether in furnishings, floor coverings, wall paints, or even everyday cleaning compounds. But, then again, it never hurts to add a few more ficus trees to your lobby or put a couple cheery chrysanthemums in your kitchen window.

Plants for Cleaning Indoor Air

Aloe Vera
Areca Palm
Australian Sword Fern
Bamboo Palm

Boston Fern
Chinese Evergreen
Christmas Cactus
Chrysanthemum (Pot Mum)
Corn Plant
Cyclamen
Dieffenbachia
Dracaena Marginata
Dracaena 'Janet Craig'
Dwarf Date Palm
English Ivy
Ficus
Gerbera Daisy
Golden Pothos
Peace Lily
Philodendron
Prayer Plant
Reed Palm
Rubber Plant
Snake Plant
Spider Plant

More Information

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